

## Cabinet Structure

### Background of the Invention

#### 1. Field of the Invention

The present invention relates to a cabinet structure that is easy to  
5 assemble, store, and transport.

#### 2. Description of the Related Art

A cabinet generally has at least one door that is mounted to the cabinet body by a rail or hinge, which, in either case, is not easy to a do-it-yourself (DIY) customer. Thus, the cabinet is usually assembled in the factory and thus has a  
10 relatively large volume, causing a problem to storage and transportation and adding cost to the manufacturer and the agency selling the cabinet.

### Summary of the Invention

An object of the present invention is to provide a cabinet structure that is easy to assemble, store, and transport.

15       In an embodiment of the invention, a cabinet structure comprises:  
            a main frame including two vertical rods and two horizontal rods, forming a rectangular frame, each said vertical rod including a plurality of pin holes, each said horizontal rods including a plurality of rails, with a plurality of doors being slidably mounted on the rails;  
  
20       a plurality of separation boards each having a pin on each of two lateral sides thereof, each said pin being pivotally received in the respective pin hole of the respective vertical rod;  
  
            two side plates each having a side, a plurality of hinges coupling the side of the respective side plate to a side of the main frame, each said side plate having  
25       a vertical groove defined in a rear end of an inner side thereof, a plurality of

vertically spaced supporting blocks being formed on each said vertical groove for supporting the separation boards, each said side plate including a top side having a plurality of engaging holes, a fastener being partially engaged in each said engaging hole;

- 5           a rear plate having two lateral sides each of which is removably received in the vertical groove of the respective side plate via a top side of the vertical groove of the respective side plate, and
- a top plate removably mounted on top of the side plates and releasably engaged with the fasteners.

- 10          In another embodiment of the invention, a cabinet structure comprises:
- a main frame including two vertical rods and two horizontal rods, forming a rectangular frame, each said vertical rod including a plurality of pin holes, at least one door being hinged to the main frame;
- 15          a plurality of separation boards each having a pin on each of two lateral sides thereof, each said pin being pivotally received in the respective pin hole of the respective vertical rod;

- two side plates each having a side, a plurality of hinges coupling the side of the respective side plate to a side of the main frame, each said side plate having a vertical groove defined in a rear end of an inner side thereof, a plurality of vertically spaced supporting blocks being formed on each said vertical groove for supporting the separation boards, each said side plate including a top side having a plurality of engaging holes, a fastener being partially engaged in each said engaging hole;

- 20          a rear plate having two lateral sides each of which is removably received in the vertical groove of the respective side plate via a top side of the vertical groove of the respective side plate, and

a top plate removably mounted on top of the side plates and releasably engaged with the fasteners.

Other objects, advantages, and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

#### Brief Description of the Drawings

Fig. 1 is an exploded perspective view of a cabinet structure in accordance with the present invention.

Fig. 1A is an enlarged view of an upper circled portion in Fig. 1.

Fig. 1B is an enlarged view of a lower circled portion in Fig. 1.

Fig. 2 is a front elevational view of the cabinet structure in accordance with the present invention.

Fig. 3 is a sectional view taken along line 3-3 in Fig. 2.

Fig. 4 is a perspective view, partly exploded, of another embodiment of the cabinet structure in accordance with the present invention.

Fig. 5 is a view illustrating folding of the cabinet structure in accordance with the present invention.

#### Detailed Description of the Preferred Embodiments

Referring to Figs. 1 through 3, a cabinet structure in accordance with the present invention generally comprises a main frame 1, two side plates 2, a rear plate 3, and a top plate 4. The main frame 1 includes two vertical rods 11 and two horizontal rods 12, forming a rectangular structure. Each vertical rod 11 includes a plurality of pin holes 111. A plurality of separation boards 13 are provided, and each separation board 13 includes a pin 131 on each of two opposed sides thereof. The respective pin 131 is inserted into the respective pin hole 111 of the respective vertical rod 11, allowing the respective separation board 13 to pivot

about the respective pin 131. The respective separation board 13 further includes a plurality of positioning pegs 132 on a bottom side thereof. The horizontal rods 12 include a plurality of tracks 121 on two mutually facing inner sides thereof. The respective track 121 allows engagement with at least one door 5; namely, the 5 door 5 may slide along the track 121.

A side of the respective side plate 2 adjacent to the main frame 1 is coupled with a side of each of a plurality of hinges 21. The other side of the respective hinge 21 is coupled to a side of the main frame 1. Thus, the respective side plate 2 may pivot about the hinge 21 relative to the main frame 1. The 10 respective side plate 2 further includes a vertical groove 22 in a rear end of an inner side thereof. Two lateral sides of the rear plate 3 are removably received in the vertical grooves 22 of the side plates 2. The side plates 2 are thus spaced and positioned from each other while preventing pivotal movement of the side plates 2. In order to retain the rear plate 3 in the vertical grooves 22, a stop 23 is formed 15 in the respective vertical groove 22 and has a top face for intimate contact with a bottom side of the rear plate 3. Further, a plurality of vertically spaced supporting blocks 24 are formed on the inner side of the respective side plate 2 and adjacent to the respective vertical groove 22. The respective supporting block 24 has a positioning groove 241 (Fig. 1B) for securely engaging with the respective 20 positioning peg 132. Thus, the respective separation board 13 rests on and is supported by the respective supporting blocks 24. Further, the respective side plate 2 has a plurality of screw holes 25 in a top side thereof for engaging with a threaded portion 261 (Fig. 1A) of a respective fastener 26.

The rear plate 3 has a length substantially equal to that of the respective 25 vertical groove 22. The rear plate 3 had a width substantially equal to a distance between the vertical grooves 22 of the side plates 2 in an unfolded state. Thus, the

respective lateral side of the rear plate 3 is insertable from top into the respective vertical groove 22 on the respective side plate 2.

The top plate 4 includes a plurality of engaging holes 41, with the respective fastener 26 being engaged with the respective fastener 26 (Fig. 1A) 5 being engaged with the respective engaging hole 41, thereby fixing the top plate 4 on top of the side plates 2.

Fig. 4 illustrates a modified embodiment of the invention, wherein the cabinet includes more than one door 5' (two in this embodiment) that are hinged to the outer side of the main frame 1 by hinges 21'. Thus, the doors 5' may pivot 10 outward about the hinges 21'.

Referring to Fig. 5, when not in use, the top plate 4 is firstly dismantled from the side plates 2, and the rear plate 3 is removed from the vertical grooves 22 of the side plates 2. Next, the separation boards 3 are pivoted about the pins 131 to a position located inside a space defined by the main frame 1. The side 15 plates 2 are then pivoted about the hinges 21 toward the main frame 1 until the side plates 2 are superimposed on the separation boards 13. Thus, the cabinet can be folded to a minimized volume for storage and transportation. A DIY customer may unfold the cabinet without any tools.

Although the invention has been explained in relation to its preferred 20 embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the invention as hereinafter claimed.